



## CITY OF LODI

## COUNCIL COMMUNICATION

**AGENDA TITLE:** Specifications and Advertisement for Bids for Underground Primary Electrical Cable

**MEETING DATE:** June 7, 1995

**SUBMITTED BY:** Electric Utility Director

**RECOMMENDED ACTION:** That the City Council approve the specifications and authorize advertisement for bids for 30,000 feet of #2AWG, and 22,500 feet of 750Kcmil underground primary conductor for the Electric Utility Department.

**BACKGROUND INFORMATION:** This cable will be needed for installation in new residential and commercial subdivisions scheduled during the next twelve months, and to provide an inventory for routine or emergency maintenance of the existing electrical system.

Some of the developments where this cable is required are Sunwest Plaza, Johnson Ranch, Century Meadows, Towne Ranch, Lodi West, J C Penney, and the Lodi Avenue Lucky Store projects.

**FUNDING:** The estimated cost of this purchase is \$95,000, and funding is available in the Electric Utility Department's Operating Fund.

**BID OPENING:** June 28, 1995

  
Hans Hansen, Acting Director, Electric Utility Department

Prepared by Joel Harris, Purchasing Officer

APPROVED: \_\_\_\_\_

THOMAS A. PETERSON  
City Manager

CITY OF LODI  
EQUIPMENT SPECIFICATIONS

15-KV, XLPE INSULATED, JACKETED AND NON-JACKETED, CONCENTRIC NEUTRAL CABLE

1.0 GENERAL

Cable furnished under these specifications shall be limited to cross-lined thermosetting polyethylene (XLPE) insulated concentric neutral cable rated 15,000 volts and suitable for installation in ducts or for direct burial in earth, in wet or dry locations, with normal conductor temperatures up to 90°C. Cables furnished shall meet the requirements of the applicable NEMA, ICEA, AEIC and ASTM Standards, latest edition thereof, unless otherwise noted in this Specification.

2.0 CABLE

A. Conductor

Insulated conductor shall be aluminum alloy, EC Grade, Class B, stranded or compressed strand, three-quarter or half hard.

B. Conductor Shield

The conductor (strand) shielding shall be extruded and shall consist of virgin black semi-conducting cross-linked, thermosetting polyethylene. The extruded shield shall have an average thickness of not less than 15 mils when measured over the top of the strands and a minimum thickness of not less than 12 mils. The outer surface of the conductor shield shall be cylindrical and shall be firmly bonded to the overlaying insulation.

C. Insulation

Insulation shall be unfilled, semi-transparent, cross-linked thermosetting polyethylene extruded directly over the conductor shield. The average insulation thickness shall not be less than 220 mils and the minimum thickness shall not be less than 90% of this value.

D. Insulation Shield

The insulation shielding shall be extruded and shall consist of one layer of virgin black semi-conducting, cross-linked thermosetting polyethylene, compatible with and extruded over the

insulation. It shall maintain its shielding properties after exposure to normal operating temperatures and environs. The insulation shield compound and thickness shall be in accordance with AEIC Standard.

E. Construction Method

Conductor shield, insulation and insulation shield shall be installed on the conductor using the triple extruding, dry cure method.

F. Concentric Neutral

The concentric conductor shall be composed of a number of round annealed bare (uncoated) copper wires helically wrapped around the cable. The number and size of the neutral wires shall be as specified in Table I. The length of lay shall not be less than 6 nor more than 10 times the diameter over the concentric wires.

G. Overall Jacket (if required on Proposal Form)

An extruded, encapsulating and insulating layer of linear, low density black polyethylene, (Union Carbide DFDB 6425, British Petroleum BP D 995, or approved equivalent) shall be applied over the concentric neutral wires in accordance with ICEA S-66-524, Part 4.3, except where modified by this Specification. The minimum thicknesses of this encapsulating jacket over the concentric wires shall be as follows:

<u>Conductor Size (AWG or KCM)</u>	<u>Minimum Thickness (Mils)</u>
#2	50
#2/0	80
750 & 1,000	110

H. Testing and Guarantee

Testing of cable shall be performed according to procedures set forth by the ICEA, AEIC and ASTM Standards. Certified copies of pass/fail test results shall be supplied. Any cable found defective either upon inspection, testing or installation will be returned at the manufacturer's expense.

I. Specific Requirements

Any conditional bids such as "subject to availability in stock" will be rejected. Cable shall be furnished according to Table I below:

TABLE I

Conductor Size AWG or KCM (No. of Strands)	Conc. Neutral Size - AWG (Min. No. of Wires)	Material Phase (Neut.)	Insulation Thick. (Mils)	NEMA Reel Code Number
#2 (7)	#14 (10)	Alum. (Cu)	220	5832
#2/0 (19)	#14 (9)/#12 (6)	Alum. (Cu)	220	5832
750 (61)	#12 (24)/#10 (15)	Alum. (Cu)	220	7848
1,000 (61)	#10 (20)	Alum. (Cu)	220	7848

**NOTE: Refer to proposal forms for specific sizes, quantities and jacketing requirements.**

J. Reels

1. Makeup and Length:

Reels are to be shipped full to their maximum capacities.

2. Packaging:

Each cable reel shall have adequate protective covering across the flanges. Such covering to consist of wood members from flange to flange covering the entire circumference of the reel (lagging). The lagging shall be nailed to the flange perimeters and shall be further secured with at least two steel bands around the reel. Each end of the cable shall be firmly secured to the reel.

**EXCEPTION: Reels containing #2 or #2/0 AWG conductor shall be paper wrapped only, no lagging.**

3. Marking:

Each reel shall be marked with a durable label securely attached to a flange of the reel and plainly marked stating the destination, the purchaser's order number, shipping length of cable on reel, weight of reel (tare weight), total weight of cable on reel, type and size of conductor, insulation type and thickness, voltage rating and manufacturer's identification number.

K. Shipping

Cable ends shall be adequately sealed with a water seal-type material and plastic end caps secured by tape to prevent penetration of moisture. There shall be no water in the stranded conductor of the cable when the reel is shipped. Reels shall be shipped upright. All shipments shall be prepaid, F.O.B. Lodi, California.